NASA Procedural Requirements

NPR 8020.12C
Effective Date: April 27, 2005
Expiration Date: April 27, 2010

COMPLIANCE IS MANDATORY

Printable Format (PDF)

Subject: Planetary Protection Provisions for Robotic Extraterrestrial Missions

Responsible Office: Science Mission Directorate

CHAPTER 5. Glossary

Assay (also referred to as "bioassay"). Any activities related to gathering of microbial data through the use of appropriate sampling techniques (swabs, wipes or other approved methods) to obtain microbial samples in order to estimate the number or types of microorganisms associated with an item of interest.

Biological Monitoring. The data management and visual surveillance activities that are performed so that the microbial burden of an item of interest may be verified.

Constraints. Bounding conditions governing aspects of the implementation of planetary protection requirements.

Encapsulated Burden. Microbial burden buried inside nonmetallic spacecraft material.

Exposed Surface. Those surfaces whose microbial burden will likely reach a planetary environment following the nominal landing of a spacecraft. For dry heat considerations, a surface that is free for gas exchange.

Mated Surface. Surfaces joined by fasteners rather than by adhesive.

Microbial Barrier. A means to protect a spacecraft or associated component(s) against microbial recontamination following the application of microbial reduction procedures.

Microbial Burden (also referred to as "Biological Burden" or "Bioburden"). The level of microbial contamination (total number of microbes, spores and non-heat shocked, or microbial density) in or on an item of interest.

Microbial Burden Density. Surface burden density - number of microbes per unit surface area. Volume burden density - number of microbes per unit volume (of non-metallic material).

Microbial Monitoring. The collection, analysis, and associated activities that are performed to verify the biological condition of an item of interest.

Microbial Reduction (also referred to as "Bioburden Reduction"). Any activities designed to remove or destroy microbes that are performed in order to reduce microbial burden levels on or in an item of interest.

Organics Archive. A stored collection of bulk organic constituents (materials) of all launched hardware.

Organics Inventory. An itemized list of bulk organic materials used in launched hardware.

Planet (or "Target Body"). As used in this document, the term includes major planets, planet satellites, and other solar system objects that may be of scientific interest.

Planetary Protection. The protection of a planet from terrestrial contaminants and the protection of the Earth's biosphere from potentially harmful extraterrestrial material.

Release (of a document). The internal (NASA) and external distribution of a document following the affixation of all required signatures.

Spore (or endospore). A structure formed by the actively growing (vegetative) stage of some bacteria that is able to remain viable under extremely harsh environmental (heat, dryness, radiation) conditions and, when the environment

improves, once again actively grow and proliferate. As used in this document and in the appropriate requirements and specifications, spore refers to a heat shock surviving microbe culturable in the NASA standard assay.

Sterilization. As used in this document, the process of actively reducing the microbial burden on flight hardware so that the hardware is nearly free (consistent with the appropriate specifications) of all living microorganisms.

Terminal Microbiological Assay. The last assay done prior to terminal sterilization.

Terminal Sterilization. A final sterilization process applied to the entire spacecraft system.

Total Microbial Burden: Total of exposed, mated, and encapsulated microbial burden.

Verification Assay. A microbiological assay performed as requested and directed by the PPO to verify compliance with planetary protection requirements.

| TOC | Preface | Chapter1 | Chapter2 | Chapter3 | Chapter4 | Chapter5 | AppendixA | AppendixB | ALL |

| NODIS Library | Program Management(8000s) | Search |

DISTRIBUTION:
NODIS